

LISTING OF THE CLAIMS

This listing of claims, including the amendments indicated below, is intended to replace all prior versions, and listings, of claims in the application

Claims 1-15 (Canceled)

Claim 16 (Currently Amended) An electrical drive unit for a wheel shaft of a vehicle, comprising:

an electrical machine comprising a radially outwardly disposed stator, a rotor radially inwardly of the stator and rotatable with respect to the stator and a drive shaft extending therethrough the machine, the rotor having an associated torque and an associated speed when driven;

a transmission unit having at least one input connectable in a rotationally fixed manner to the rotor and having at least one output connectable in a rotationally fixed manner to the wheel shaft such that rotation of the rotor rotates the wheel shaft through the transmission unit;

all of the electrical machine, including the stator, the rotor, the input and the output of the transmission unit and the wheel shaft are coaxial;

at least one power control unit operable to control at least one of speed and torque of the rotor the power control unit being combined with and attached to the electrical machine to form a physical combination therewith;

a braking resistor unit arranged in the vicinity of the electrical machine for converting electrical power of the electrical machine into thermal energy when the motor operates in a generator mode to brake the wheel shaft, the braking resistor unit being disposed around the circumference of at least one of the input or the output of the transmission unit or the wheel shaft.

Claim 17 (Previously Presented) The shaft drive unit of claim 16, further comprising a mechanical connection between the power control unit and the electrical machine.

- Claim 18 (Previously Presented) The shaft drive unit of claim 17, wherein the power control unit is both mechanically and electrically coupled to the electrical machine.
- Claim 19 (Previously Presented) The shaft drive unit of claim 16, wherein the electrical machine has a housing around it with an external circumference, and the power control unit is arranged on the external circumference of the housing of the electrical drive machine.
- Claim 20 (Previously Presented) The shaft drive unit of claim 16, wherein the electrical drive machine has opposite end surfaces and the power control unit is arranged on one of the end surfaces of the electrical drive machine.
- Claim 21 (Previously Presented) The shaft drive unit of claim 17, further comprising connector elements for mechanically connecting the electrical machine and the power control unit and the connector elements being mutually complementary for enabling a force fitted connection between them.
- Claim 22 (Previously Presented) The shaft drive unit of claim 16, further comprising a plurality of the braking resistor units arrayed along the wheel shaft coaxial with the wheel shaft in a plane in an annular shape around the circumference of the drive shaft of the electrical machine or the wheel shaft.
- Claim 23 (Previously Presented) The shaft drive unit of claim 16, further comprising a plurality of the braking resistor units each having a respective geometrical structure in a circumferential direction of the drive shaft of the electrical machine or of the wheel shaft for at least partially enclosing the drive shaft of the electrical machine.

- Claim 24 (Previously Presented) The shaft drive unit of claim 22, wherein each of the braking resistor units has an annular shape.
- Claim 25 (Previously Presented) The shaft drive unit of claim 22, wherein the plurality of braking resistor units are arranged alongside one another; the braking resistor units are each of modular construction and are adapted to be mechanically and electrically coupled to one another.
- Claim 26 (Previously Presented) The shaft drive unit of claim 24 wherein there are a plurality of the braking resistor units arranged alongside one another.
- Claim 27 (Previously Presented) The shaft drive unit of claim 16, wherein the electrical machine is a transverse flux machine.
- Claim 28 (Previously Presented) A drive system, comprising:
a shaft drive unit as claimed in claim 16; and
a power supply system for the drive shaft unit.
- Claim 29 (Previously Presented) The drive system of claim 28, wherein the power supply system comprises a fuel cell electrically connected to the electrical machine.
- Claim 30 (Previously Presented) The drive system of claim 28, wherein the power supply system comprises an internal combustion engine;
the electrical machine being mechanically coupled to the internal combustion engine and can be operated as a generator in a traction mode; and
an electrical coupling connecting the power supply system to the electrical machine for the shaft drive unit.

Claim 31 (Currently Amended) An electrical drive unit for a wheel shaft of a vehicle, comprising:

an electrical machine comprising a radially outwardly disposed stator, a rotor radially inwardly of the stator and rotatable with respect to the stator and a drive shaft extending therethrough the machine, the rotor having an associated torque and an associated speed when driven;

a transmission unit having at least one input connectable in a rotationally fixed manner to the rotor and having at least one output connectable in a rotationally fixed manner to the wheel shaft such that rotation of the rotor rotates the wheel shaft through the transmission unit;

all of the electrical machine, including the stator, the rotor, the input and the output of the transmission unit and the wheel shaft are coaxial;

at least one power control unit operable to control at least one of speed and torque of the rotor the power control unit being combined with and attached to the electrical machine to form a physical combination therewith;

a braking resistor unit arranged in a rotationally fixed relationship to a housing of the electrical machine in the vicinity of the electrical machine for converting electrical power of the electrical machine into thermal energy to brake the wheel shaft, the braking resistor unit being disposed around the circumference of at least one of the input or the output of the transmission unit or the wheel shaft.